REMARKS

In the Office Action, the Examiner rejected claims 27-38, 42, and 49-52 as being anticipated under 35 U.S.C. § 102(e) by USP 6,516,455 issued to Teig et al (Teig). In this Amendment, Applicants have amended claims 27, 35, 42, 45, 49, 50, and 55. Claims 27-55 will be pending after entry of this Amendment.

I.   CLAIMS 27-34

In the Office Action, the Examiner rejected claims 27-34 as being anticipated under § 102(e) by Teig. Applicants respectfully submit that Teig discloses a variety of methods for placing nets, while claims 27-34 recite methods for routing a set of nets. In this Response, Applicants have amended claim 27 to elaborate further on this difference. Amended claim 27 now recites that the routing method defines routes for a set of nets, where a route for a particular net traverses a set of sub-regions that contain a set of routable elements of the particular net. Each of the claims 27-34 recites a routing method that uses a first set of lines to partition the IC region into several sub-regions. The method then defines at least one route for each net, where a particular route for a particular net traverses a set of sub-regions that contain the set of routable elements of the particular net. The method uses a second set of lines to measure the congestion of the routes within the IC region, where at least some of the lines in the second set are different from the lines in the first set.

Applicants respectfully submit that Teig does not disclose such a method. Specifically, Teig does not disclose (1) partitioning the IC region into several sub-regions, (2) defining routes that traverse the sets of sub-regions that contain the set of routable elements of the nets, and (3) using a second set of lines to measure the congestion of the routes, where at least some of the

lines in the second set are different from the lines in the first set. Accordingly, Applicants respectfully request reconsideration and withdraw of the § 102(e) rejection of claims 27-34.

II.   CLAIMS 35-41

In the Office Action, the Examiner rejected claims 35-38 as being anticipated under § 102(e) by Teig. Applicants respectfully submit that Teig discloses a variety of methods for placing nets, while claims 35-38 recite methods for routing a set of nets. In this Response, Applicants have amended claim 35 to elaborate further on this difference. Specifically, each of the claims 35-58 recites a routing method that partitions the IC region into several sub-regions, by using a first set of lines, where several diagonal routing paths exist between the sub-regions. The method identifies the capacity of the diagonal routing paths based on a second set of lines, where at least several lines in the second set are different from the lines in the first set. The method uses the identified capacities to define routes for the set of nets, where a particular route for a particular net traverses the set of sub-regions that contain the set of routable elements of the particular net.

Applicants respectfully submit that Teig does not disclose such a method. Specifically, Teig does not disclose a method that (1) partitions the IC region into several sub-regions, (2) identifies the capacity of diagonal routing paths between the sub-regions based on a second set of lines, which are at least partially different from the lines in the first set, and (3) uses the identified capacities to define routes for the set of nets, where a particular route for a particular net traverses the set of sub-regions that contain the set of routable elements of the particular net. Accordingly, Applicants respectfully request reconsideration and withdraw of the § 102(e) rejection of claims 35-38.

The Examiner found claims 39-41 to be allowable. Applicants respectfully acknowledge the allowance of these claims.

III. CLAIMS 42-48

In the Office Action, the Examiner rejected claim 42 as being anticipated under § 102(e) by Teig. Applicants respectfully note that Teig discloses a variety of methods for placing nets, while claim 42 recites a method for routing a net. Applicants have amended claim 42 to elaborate further on this difference. Specifically, as amended, claim 42 recites a routing method that receives a particular region of an integrated circuit ("IC") layout. The method partitions this region into several sub-regions, where several diagonal and non-diagonal routing paths exist between the sub-regions. The diagonal routing paths are defined with respect to a first grid, while the non-diagonal routing paths are defined with respect to a second grid. The method uses at least one diagonal routing path and at least one non-diagonal routing path to define and store a route that connects a set of sub-regions that contain a set of routable elements of the net.

Applicants respectfully submit that Teig does not disclose partitioning an IC layout into several sub-region, which have diagonal and non-diagonal routing paths between them, where the diagonal routing paths are defined with respect to a first grid, and the non-diagonal routing paths are defined with respect to a second grid. Moreover, Teig does not disclose using diagonal and non-diagonal routing paths to define and store a route that connects a set of sub-regions that contain a set of routable elements of a net. Accordingly, Applicants respectfully request reconsideration and withdraw of the § 102(e) rejection of claim 42.

The Examiner found claims 43-48 to be allowable. Applicants respectfully acknowledge the allowance of these claims.

IV. CLAIM 49

In the Office Action, the Examiner rejected claim 49 as being anticipated under § 102(e) by Teig. Applicants respectfully note that Teig discloses a variety of methods for placing nets, while claim 49 recite a method for routing a net. Applicants have amended claim 49 to elaborate

further on this difference. Specifically, as amended, claim 49 recites a routing method that routes a set of pins according to an octagonal wiring model. This method receives a particular region of an IC layout. It then partitions the region into several four-sided sub-regions, which have several ±45° diagonal and Manhattan routing paths between them. The Manhattan routing paths are defined with respect to a first grid, and the ±45° diagonal routing paths are defined with respect to a second grid that is at 45° with respect to the first grid. The method uses the diagonal and Manhattan routing paths to define and store a route that connects the set of sub-regions that contain the set of pins.

Applicants respectfully submit that Teig does not disclose partitioning an IC layout into several four-sided sub-region, that have ±45 and Manhattan routing paths between them, where the diagonal routing paths are defined with respect to a first grid, while the non-diagonal routing paths are defined with respect to a second grid. Moreover, Teig does not disclose using diagonal and Manhattan routing paths to define and store a route that connects a set of sub-regions that contain the set of pins. Accordingly, Applicants respectfully request reconsideration and withdraw of the § 102(e) rejection of claim 49.

II.   CLAIMS 50-55

In the Office Action, the Examiner rejected claims 50-52 as being anticipated under § 102(e) by Teig. Applicants respectfully submit that Teig discloses a variety of methods for placing nets, while claims 50-52 recite computer readable media that store computer programs for routing a set of nets. In this Response, Applicants have amended claim 50 to elaborate further on this difference. Specifically, each of the claims 50-52 recites a program that partitions the IC region into several sub-regions by using a first set of lines, where several diagonal routing paths exist between the sub-regions. The program identifies the capacity of the diagonal routing paths

based on a second set of lines, where at least several lines in the second set are different from the lines in the first set. The program uses the identified capacities to define routes for the set of nets, where a particular route for a particular net traverses the set of sub-regions that contain the set of routable elements of the particular net.

Applicants respectfully submit that Teig does not disclose such a program. Specifically, Teig does not disclose a program that (1) partitions the IC region into several sub-regions, (2) identifies the capacity of diagonal routing paths between the sub-regions based on a second set of lines, which are at least partially different from the lines in the first set, and (3) uses the identified capacities to define routes for the set of nets, where a particular route for a particular net traverses the set of sub-regions that contain the set of routable elements of the particular net. Accordingly, Applicants respectfully request reconsideration and withdraw of the § 102(e) rejection of claims 50-52.

The Examiner found claims 53-55 to be allowable. Applicants respectfully acknowledge the allowance of these claims.
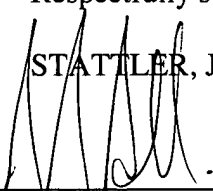
CONCLUSION

In view of the foregoing, it is submitted that the claims are in condition for allowance. Reconsideration of the rejections is requested. Allowance is earnestly solicited at the earliest possible date.

Respectfully submitted,

STATTLER, JOHANSEN & ADELI LLP

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